

Win – Win by Re-Use



WASTE CONNECTIONS
Connect with the Future®



MEADOWBRANCH
LANDFILL

Steve Keylor

“Garbage Man”

- Solid Waste Industry for over 28 Years
- Associates Degree in Petroleum Engineering
- Started in the Landfill Gas Design, Drilling, Construction, and O&M (OWT)
- Moved to Day/Day LF Operations in 1994 with Chambers/USA Waste – Rumpke – Republic – Waste Connections (started 14th year)
- Experience in Landfills (C&D, MSW) 100 – 8,000 tpd, TS, & Long Haul

The Public's Opinion

- The Public Forms Their Opinion about your facility from basically 3 things:
 - Aesthetics – What does the facility look like? A Park or a Dirt Hill?
 - Is your Hill Offensive? Odor?
 - The Road Condition Around Your Site – Muddy, Litter?

TDEC's Desired Landfill Slopes



TDEC's Desired Landfill Slopes



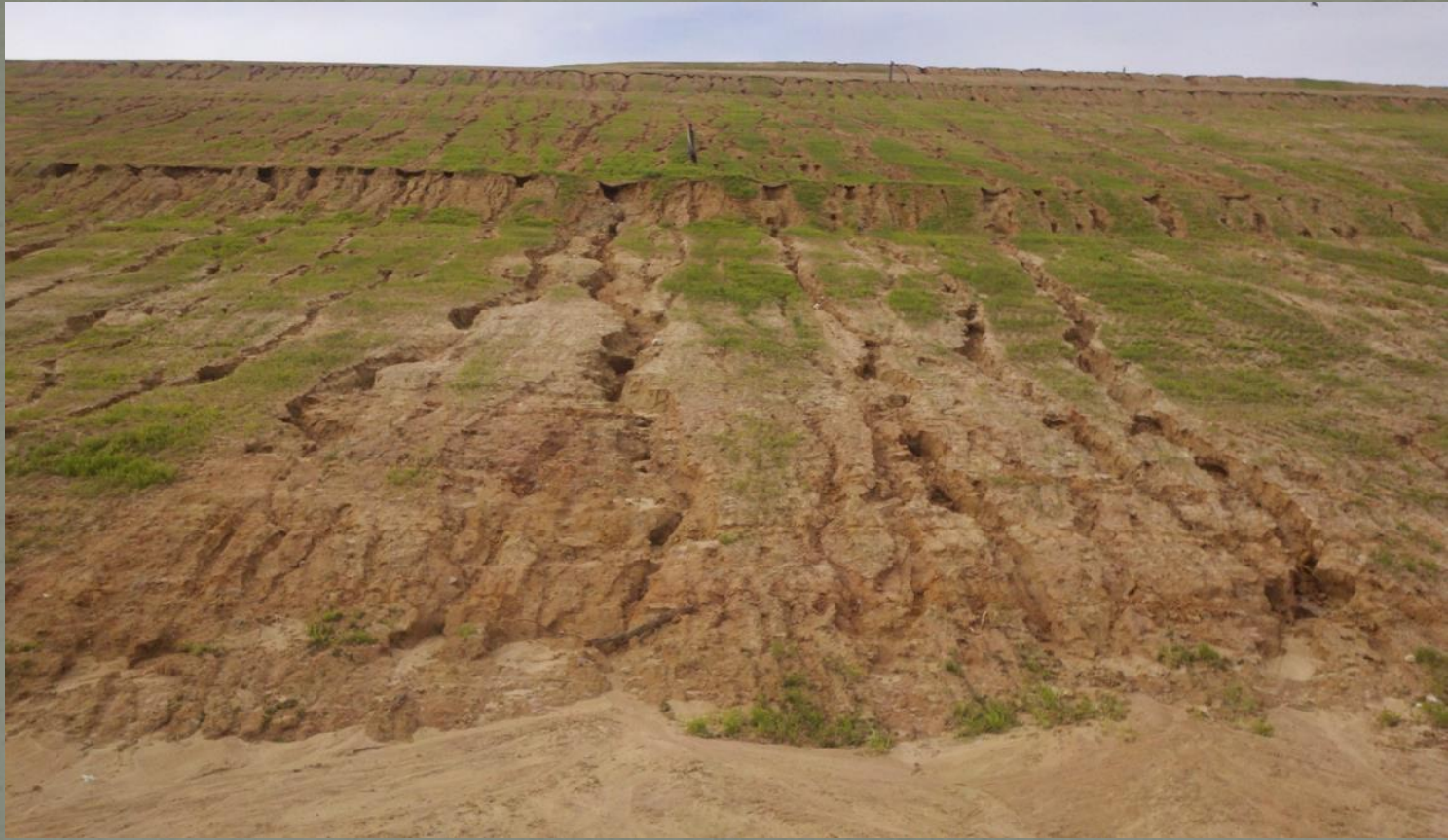
I Don't See Much Vegetation.



Week Vegetation



What can happen Without Good Vegetation.



Kind of What we Normally Get



What I Started with in 2013



Meadowbranch Vegetation Issues

- Prior Management Had Seeded Several Times with No Success
- Poor Soil
 - No Top Soil Available on Site
 - Site Soil
 - High in Gravel and Sandy
 - Would not Hold Moisture
 - Seed Mix Being Used Was Poor Choice
 - No Follow Up When Needed

Out Side the Box Thinking

- We Needed to Enhance our Soil.
- We took in a large volume of different type's of sludge.
 - POTW – Class 1 (No Pathogens) and Class 2 (Pathogens)
 - Industrial
- Being the Ole Farm Boy, I started asking Myself, Would POTW Sludge be like Manure from the Farm??

Answer:

MAYBE??

Some Potential Waste Streams



Approval And Testing of POTW Sludge

- Class II Sludge the Best but Had Pathogens to deal with.
 - Had a Lime Waste From another Customer
 - Gained TDEC Approval for a Bench Test to combine the Class II POTW and Waste Lime to make a Class I Sludge.
 - Came up with Proper Mixture to Have Clean Class I Sludge.
 - Installed Pits for 2 Acre Test Plots on LF

The Mixing (Cooking) Process



POTW Sludge/Lime/Soil On the Slopes



After 1 Year – Didn't Work So Well



What Happened??

- We Found the Seed Curled up and Broken open.
(Burned Up)
- We Believe the Lime Mixture rate that we had to use to bring the sludge from Class II down to Class I was too strong to then sustain vegetation right away.
- The Mixture sat on the slope for another couple of years and vegetation did establish later on however it took far too long.

Back to the Drawing Board!!

- Lessons Learned:
 - Right Idea, Wrong Material
 - Do Small Test Plots First
 - Material Needs to be Ready to go
 - Maintaining Moisture More Important than Nutrients
 - Need Customer that wants to be a Partner in the Process
 - Partner needs to be willing to enter into long term agreements due to investment needed.

We Found Our Partner!!



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TATE & LYLE



New Approval and Testing Begins

- Two Different Waste Streams
 - Corn Sludge – No Nutrients
 - Bio Mass – Nutrients
- Each Waste Stream has their own issues
- Bench Tests
- Test Plots

Test Plots



Test Plots



Test Plots



Test Plot Results after 30 Days

Wastewater no Fert and Control Plot



Test Plot Results after 30 Days Wastewater w/Fert and Bio



It worked!! Now Full Scale!



“The Slide”



Placing & Spreading



Stages of Growth



Results

2016



2018



Results

2016



2018



What the Sludge Mixing has Done for Meadowbranch

June 2013

January 2018



Reduce – Reuse!!! Is A
Win – Win Solution
for our ALL Involved!!



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TATE & LYLE

Meadowbranch Gains

- Public Confidence
- Public Image
- TDEC Trust
- Nice Esthetics of Facility
- Less Erosion, thus less work to Maintain
- Trust of Customer /Partner
- Company Image as Leader in Industry
- Good Steward to the Environment
- Team – Gains Pride

Tate & Lyle Receives TN Chamber of Commerce & Industry Award 2016



Thank You for Staying Awake

Steve Keylor
Meadowbranch Landfill
Waste Connections